IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

HENRYS LAKE HATCHERY

Annual Report

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by
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HENRYS LAKE HATCHERY

Annual Report

ABSTRACT

This year, an estimated 25,000 cutthroat ascended the ladder and nearly 12,000 spawners yielded 5.85 million eyed eggs for Henrys Lake and statewide allocations. Just over 5.5 million cutthroat eggs were shipped to Ashton and McCall hatcheries, and 138,000 cutthroat-rainbow hybrid eggs were shipped to the Grace Hatchery. This fall, 2.035 million cutthroat and 135,000 hybrid fry and fingerlings were stocked in Henrys Lake. Further studies investigating the feasibility of producing sterile hybrids using heat-shock were undertaken. Preserved rainbow trout sperm was crossed with cutthroat eggs to produce three different hybrid strains for Henrys Lake.

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OBJECTIVES

The objectives for Henrys Lake Hatchery are:

1. To obtain sufficient spring cutthroat eggs to provide for a return of 2 million fingerlings (2-3 inch) to the lake the following fall. Additional eggs were taken to satisfy other statewide requests. The total requirement amounts to 5 to 7 million eyed eggs, most of which are shipped to other hatcheries for rearing.

2. To rear on site 500,000 cutthroat fry and fingerlings for Henrys Lake.

3. To take sufficient cutthroat eggs for crossing with rainbow milt to obtain enough hybrid eggs for a return of 200,000 fingerlings to Henrys Lake.

INTRODUCTION

Henrys Lake Hatchery is located on Highway 87 about 50 miles north of Ashton in the Island Park area. Hatchery buildings include a spawnhouse, hatchery-office-garage complex and one permanent residence with a patrol cabin. The hatchery superintendent resides at the hatchery for nine months (March through October) and relocates to American Falls Hatchery for the winter. The cabin functions as temporary housing for research and other personnel as needed.

The hatchery water supply, at a constant 45 F, originates from a nearby spring (Hatchery Creek) and is gravity fed to all buildings and an outdoor rearing pond. A concrete fish ladder is installed below the spawnhouse to provide for spawner access and fry escapement. The hatchery has use rights on 1 cfs which supplies the needs of the hatchery and rearing facilities. Because of slow growth at this low water temperature, most eyed eggs are shipped to hatcheries with warmer water.

Egg hatching facilities include 10 Heath incubator stacks (16 trays) with flows adjusted to 6 gal/min per stack. Fry rearing facilities include three concrete starter vats (2,000 gal. capacity; 250 gal/min inflow). A shallow dirt-bottom pond (2 cfs) is used in gaining additional growth of fry during the summer months when pond water temperatures are 50-55 F. Fry are transferred from the starter vats to the rearing pond, grown to as large as possible and released directly to the lake via Hatchery Creek in late September. At least 500,000 fish are released down the hatchery ladder to ensure an adequate return of adults for future egg-taking purposes. Fingerlings reared at other hatcheries are transported back to Henrys Lake in September and distributed at several primary sites around the lake.

In general, the purpose of Henrys Lake Hatchery was historically to supplement the lake's native cutthroat population in the face of ever-increasing exploitation of the fishery. In more recent years, it has also been instrumental in establishing and supporting a highly popular CTxRB hybrid fishery. The brook trout fishery at Henrys Lake

is partially supported by a fingerling stocking program, and since 1980, the Canadian brook trout have become an important segment of the management plan.

FISH PRODUCTION

The total egg take this year amounted to 6,533,088 cutthroat and 716,456 hybrid eggs (Table 1). A total of 11,763 cutthroat adults were spawned at a ratio of 3:1 males:females. In addition, 5,800 adult cutthroat were marked and planted in two lake tributaries (Targhee and Howard creeks). The spawning run this spring was estimated at about 25,000 fish.

Eye-up of cutthroat eggs was 95%, but success with hybrid eggs was less notable (Table 1). Three strains of rainbow trout sperm (Ennis NFH) were crossed with Henrys Lake cutthroat eggs. The McConahay cross experienced poor survival to eye-up, and a subsequent Erwin strain cross fared little better. The Redband cross eyed-up somewhat better, but hatching and swim-up survival was below normal. This was our first experience using "preserved" sperm from a certified disease-free source. Low survival of these crosses may have been due to inferior egg quality (late-spawning females), poor sperm viability, or both.

Henrys Lake cutthroat and Erwin hybrids were reared at the hatchery with an overall conversion of .385. Conversion was aided by the presence of abundant natural feed in the rearing pond, where good growth was achieved with minimal artificial feed. Growth rates of fry in the vats, even at optimal feeding levels, were extremely slow.

More than 5.5 million eggs were shipped to Ashton, McCall and Mackay hatcheries, and 138,000 hybrid eggs (Redband and McConahay) were shipped to Grace Hatchery (Table 2). Approximately 1.5 million cutthroat fingerlings reared at Ashton and McCall were returned to the lake at accessible locations (Hatchery, Timber, Duck, Howard and Targhee creeks and state and county boat docks) (Table 3). Another 574,995 fry and fingerling cutthroat were released from Henrys Lake Hatchery, making a total of 2.035 million fry and fingerling returns to the lake this year. The return of hybrids amounted to 135,000 fry and fingerlings planted at the county dock (Redband and McConahay) and at the hatchery (Erwin).

Several special projects were on-going at Henrys Lake Hatchery this year. An iodophore bioassay was performed on cutthroat eggs to determine optimal dosage during water-hardening, but no conclusions could be drawn due to poor survival of all test groups, including the control. Another attempt to heat-shock hybrid eggs to produce sterile triploids gave better indications of future directions to be taken. Exposure to 27 C for 25 minutes at 25 minutes post-fertilization achieved high triploidy combined with acceptable mortality. A special diet containing TM-50 (Terramycin) was fed to cutthroat fry at Ashton and Henrys Lake. This chemical is deposited in bone which can be detected at a later date in samples of mature fish taken from the lake and in the hatchery spawning run to provide a means of estimating the proportion of hatchery-origin fish in the adult population.

Table 1. Spawning summary, 1984.

Species	Green eggs	Eyed eggs	% eye-up
CT (C-2)	6,533,088	6,232,038	95
CTxRB (Redband)	78,000	66,420	85
CTxRB (McConahay)	419,000	71,604	17
CTxRB (Erwin)	219,456	80,000	36
TOTAL	7,249,544	6,450,062	

Table 2. Eyed egg shipments, 1984.

Species	to:	Grace	Ashton	McCall	Mackay
CT		--	4,284,695	1,067,958	176,904
CTxRB (Redband)		66,420	--	--	--
CTxRB (McConahay)		71,604	--	--	--
TOTAL	5,667,581				

Table 3. Henrys Lake fall plant, 1984.

Species	Source	Number	Size (#/lb)	Total
CT	Ashton*	661,500	250	
CT	McCall	798,372	324	
CT	Henrys Lake*	412,500	275	
		162,495	690	2,034,895
CTxRB (Redband)	Grace	24,519	487	
CTxRB (McConahahy	Grace	35,000	429	
CTxRB (Erwin)	Henrys Lake	75,108	1,138	134,627
Brook Trout	Cornell, N.Y.	0**		

*These fish were fed TM-50 for marking purposes.
**No eggs received from supplier in 1983.

FISH HEALTH

The incidence of disease was nil this year. No soft-shell was apparent. This problem is normally avoided by studious use of Wescodyne as in past years. High hybrid mortality was not attributable to disease. Harold Ramsey diagnosed summer mortality of cutthroat spawners at Henrys Lake outlet as due to post-spawning and thermal stress, but found no overt disease symptoms.

HATCHERY IMPROVEMENTS

This year, feeding platforms for the rearing pond were erected, a workbench was installed in the garage, a woodshed was constructed, the spawnhouse alarm cable was replaced and the piping system was improved. Carpet was installed in the permanent residence, and the water box for the hatchery water supply was replaced and insulated.

MISCELLANEOUS

The hatchery superintendent assisted research and enforcement personnel when needed and informed the public about the hatchery and Henrys Lake. Research activities included tributary screen maintenance, creel census, fry trapping, fish scale collections and trap-netting in the lake.

STAFF

Roland Warren (Oct-Mar), Hatchery Superintendent I; Tom Frew (Mar-July), Hatchery Superintendent I and Lynn Watson (July-Oct), Hatchery Superintendent I.